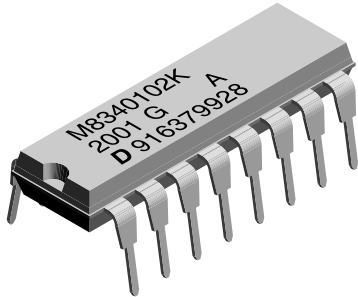


Thick Film Resistor Networks Military, MIL-PRF-83401 Qualified, Type RZ Dual-In-Line Package, 01, 03, 05 Schematics



FEATURES

- MIL-PRF-83401 qualified
- Epoxy molded construction
- All device leads are hot-solder dipped
- Available in tube pack
- TCR available in "K" (± 100 ppm/ $^{\circ}$ C) or "M" (± 300 ppm/ $^{\circ}$ C) depending on style
- 100 % screen tested per Group A, Subgroup 1 of MIL-PRF-83401
- All devices are capable of passing the MIL-STD-202, Method 210, Condition D, "Resistance to Soldering Heat" test

STANDARD ELECTRICAL SPECIFICATIONS

| VISHAY DALE MODEL/ PINS NO | SCHEMATIC | RESISTOR POWER RATING MAX. at 70 $^{\circ}$ C W | PACKAGE POWER RATING MAX. at 70 $^{\circ}$ C W | RESISTANCE RANGE Ω | STANDARD TOLERANCE \pm % | TEMPERATURE COEFFICIENT (- 55 $^{\circ}$ C to + 125 $^{\circ}$ C) | WEIGHT g |
|----------------------------|-----------|---|--|---------------------------|--|---|----------|
| MDM 14 | 01 | 0.10 | 1.30 | 10 - 1M | ± 2 (± 1 , ± 5) ⁽²⁾ | K, M ⁽¹⁾ | 1.3 |
| MDM 14 | 03 | 0.20 | 1.40 | 10 - 1M | ± 2 (± 1 , ± 5) ⁽²⁾ | K, M ⁽¹⁾ | 1.3 |
| MDM 14 | 05 | 0.05 | 1.20 | Consult factory | ± 2 (± 1 , ± 5) ⁽²⁾ | K, M ⁽¹⁾ | 1.3 |
| MDM 16 | 01 | 0.10 | 1.50 | 10 - 1M | ± 2 (± 1 , ± 5) ⁽²⁾ | K, M ⁽¹⁾ | 1.5 |
| MDM 16 | 03 | 0.20 | 1.60 | 10 - 1M | ± 2 (± 1 , ± 5) ⁽²⁾ | K, M ⁽¹⁾ | 1.5 |
| MDM 16 | 05 | 0.05 | 1.40 | Consult factory | ± 2 (± 1 , ± 5) ⁽²⁾ | K, M ⁽¹⁾ | 1.5 |

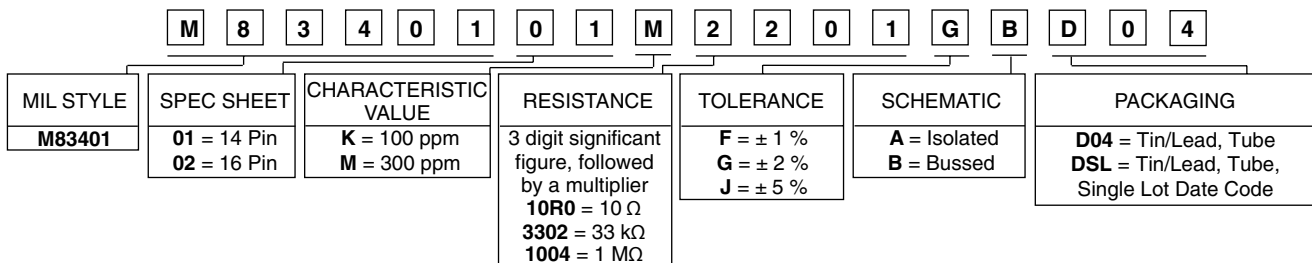
Notes

⁽¹⁾ K = ± 100 ppm/ $^{\circ}$ C; M = ± 300 ppm/ $^{\circ}$ C

⁽²⁾ ± 1 % and ± 5 % tolerances available on request

GLOBAL PART NUMBER INFORMATION

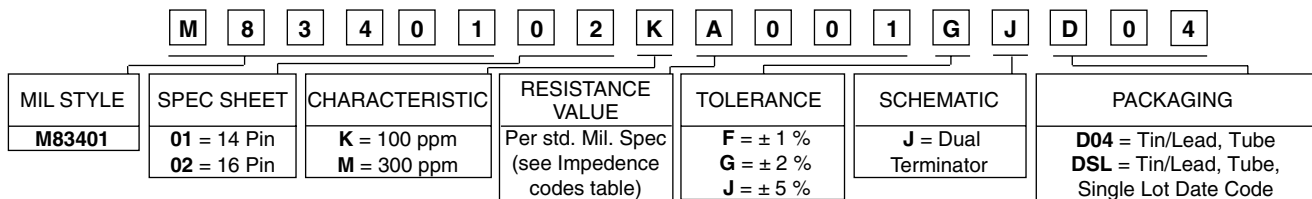
New Global Part Numbering: M8340101M2201GBD04 (preferred part numbering format)



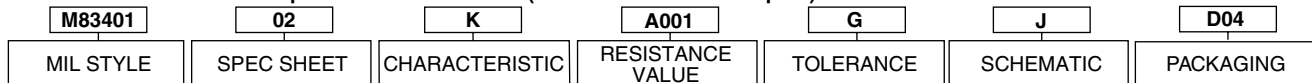
Historical Part Number example: M8340101M2201GB (will continue to be accepted)



New Global Part Numbering: M8340102KA001GJD04 (preferred part numbering format)



Historical Part Number example: M8340102KA001GJ (will continue to be accepted)

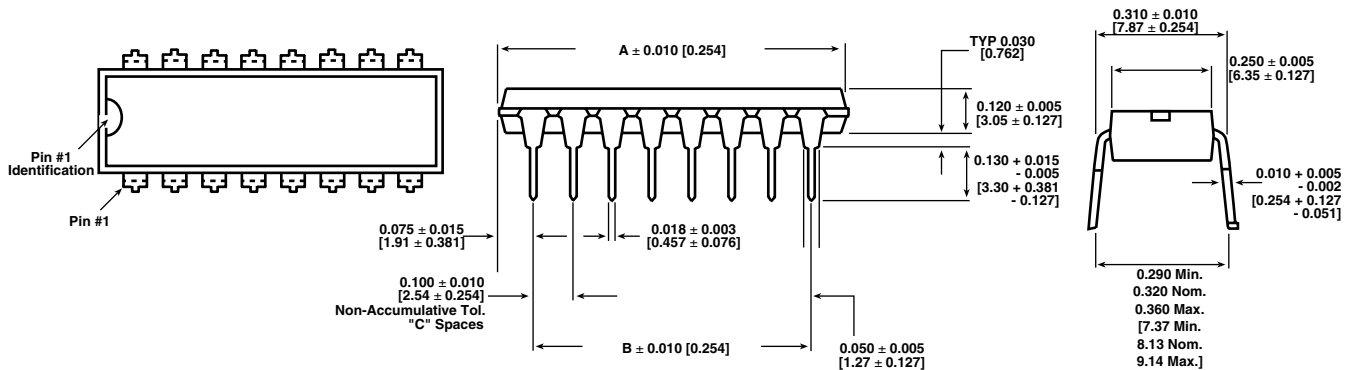




MDM (Military M83401)

Thick Film Resistor Networks Military, MIL-PRF-83401 Qualified, Vishay Dale
Type RZ Dual-In-Line Package, 01, 03, 05 Schematics

DIMENSIONS in inches [millimeters]



| VISHAY DALE MODEL | A | B | C |
|-------------------|---------------|---------------|---|
| MDM14 | 0.750 [19.05] | 0.600 [15.24] | 6 |
| MDM16 | 0.850 [21.59] | 0.700 [17.78] | 7 |

| IMPEDANCE CODES | | | | | |
|-----------------|--------------------|--------------------|------|--------------------|--------------------|
| CODE | R ₁ (Ω) | R ₂ (Ω) | CODE | R ₁ (Ω) | R ₂ (Ω) |
| A001 | 82 | 130 | A010 | 330 | 470 |
| A002 | 120 | 200 | A011 | 330 | 680 |
| A003 | 130 | 210 | A012 | 1.5K | 3.3K |
| A004 | 160 | 260 | A013 | 3K | 6.2K |
| A005 | 180 | 240 | A014 | 180 | 270 |
| A006 | 180 | 390 | A015 | 270 | 270 |
| A007 | 220 | 270 | A016 | 560 | 560 |
| A008 | 220 | 330 | A017 | 560 | 1.2K |
| A009 | 330 | 390 | A018 | 620 | 2.7K |

| TECHNICAL SPECIFICATIONS | | |
|-----------------------------------|------------------|---------------|
| PARAMETER | UNIT | MDM SERIES |
| Maximum Operating Voltage | V _{DC} | 100 |
| Voltage Coefficient of Resistance | V _{eff} | < 50 ppm |
| Dielectric Strength | V _{AC} | 200 per min. |
| Insulation Resistance | Ω | 10 000 M |
| Operating Temperature Range | °C | - 55 to + 125 |
| Storage Temperature Range | °C | - 55 to + 150 |

| MECHANICAL SPECIFICATIONS | |
|--------------------------------|--------------------------------------|
| Marking Resistance to Solvents | Permanency testing per MIL-PRF-83401 |
| Solderability | Per MIL-PRF-83401 |
| Body | Molded epoxy |
| Terminals | Copper alloy, hot-solder dipped |

MDM (Military M83401)

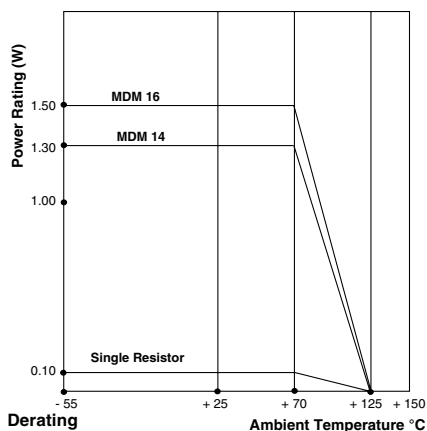


Vishay Dale Thick Film Resistor Networks Military, MIL-PRF-83401 Qualified, Type RZ Dual-In-Line Package, 01, 03, 05 Schematics

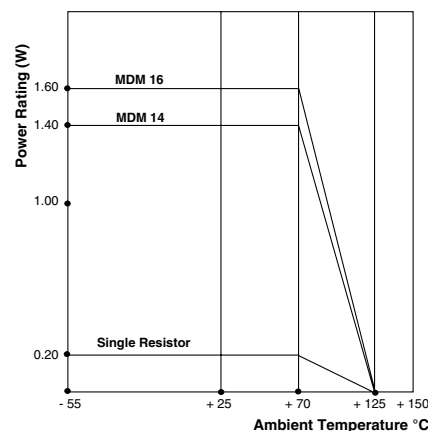
| CIRCUIT APPLICATIONS | |
|----------------------------|--|
| <p>01 SCHEMATIC</p> | <p>MDM1401 (M8340101xxxxxB) MDM1601 (M8340102xxxxxB)</p> <p>13 or 15 resistors with one pin common</p> <p>The MDMxx01 provides the user with a choice of 13 or 15 nominally equal resistors, each connected to a common pin. Commonly used in the following applications:</p> <ul style="list-style-type: none"> • MOS/ROM Pull-up/Pull-down • Open Collector Pull-up • "Wired OR" Pull-up • Power Driven Pull-up • TTL Input Pull-down • Digital Pulse Squaring • TTL Unused Gate Pull-up • High Speed Parallel Pull-up |
| <p>03 SCHEMATIC</p> | <p>MDM1403 (M8340101xxxxxA) MDM1603 (M8340102xxxxxA)</p> <p>7 or 8 isolated resistors</p> <p>The MDMxx03 provides the user with a choice of 7 or 8 nominally equal resistors, with each resistor isolated from all others. Commonly used in the following applications:</p> <ul style="list-style-type: none"> • "Wired OR" Pull-up • Power Driven Pull-up • Line Termination • Long-line Impedance Balancing • LED Current Limiting • ECL Output Pull-down • TTL Input Pull-down |
| <p>05 SCHEMATIC</p> | <p>MDM1405 (M8340101xxxxxJ) MDM1605 (M8340102xxxxxJ)</p> <p>12 or 14 resistor pairs</p> <p>The MDMxx05 provides the user with a choice of 12 or 14 pairs of R1/R2 resistor values for pulse squaring and TTL dual-line terminating requirements.</p> |

CAGE CODE: 91637

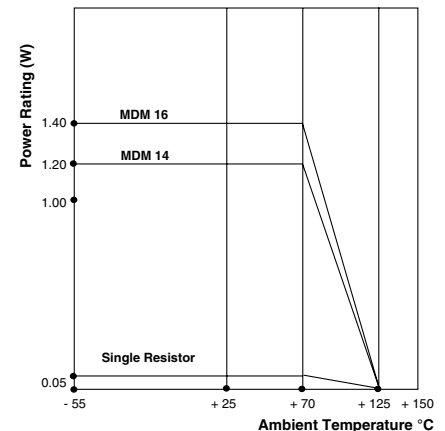
01 Schematic



03 Schematic



05 Schematic





MDM (Military M83401)

Thick Film Resistor Networks Military, MIL-PRF-83401 Qualified, Vishay Dale
Type RZ Dual-In-Line Package, 01, 03, 05 Schematics

| PERFORMANCE | | |
|---------------------------------|--|--|
| TEST | CONDITIONS | MAX. ΔR (Typical Test Lots) |
| Power Conditioning | 1.5 x rated power, applied 1.5 h "ON" and 0.5 h "OFF" for 100 h \pm 4 h at + 25 °C ambient temperature | \pm 0.50 % ΔR |
| Thermal Shock | 5 cycles between - 65 °C and + 125 °C | \pm 0.50 % ΔR |
| Short Time Overload | 2.5 x rated working voltage for 5 s | \pm 0.25 % ΔR (Char. K) \pm 0.50 % ΔR (Char. M) |
| Low Temperature Operation | 45 min at full rated working voltage at - 65 °C | \pm 0.25 % ΔR (Char. K) \pm 0.50 % ΔR (Char. M) |
| Moisture Resistance | 240 h with humidity ranging from 80 % RH to 98 % RH | \pm 0.50 % ΔR |
| Resistance to Soldering Heat | Leads immersed in + 260 °C solder to within 1/16" of body for 10 s | \pm 0.25 % ΔR |
| Shock | Total of 18 shocks at 100 G's | \pm 0.25 % ΔR |
| Vibration | 12 h at maximum of 20 G's between 10 and 2000 Hz | \pm 0.25 % ΔR |
| Load Life | 1000 h at + 70 °C, rated power applied 1.5 h "ON", 0.5 h "OFF" for full 1000 h period | \pm 0.50 % ΔR (Char. K) \pm 2.00 % ΔR (Char. M) |
| Terminal Strength | 4.5 pound pull for 30 s | \pm 0.25 % ΔR |
| Insulation Resistance | 10 000 M Ω (minimum) | - |
| Dielectric Withstanding Voltage | No evidence of arcing or damage (200 V _{RMS} for 1 min) | - |



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